

3/14/2018

Print



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Ag D:
P0039214	TWM001-VU	1	1	Net 30	M304P0.675W.091	304/316 Pipe .675 OD x .091 Wall Thickness : MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE AS PER ASTM A312/ASME SA312 receive ft				60	3/12/2018	69		S051210	Stock	3/14/2018	\$ 3.49 / ft	
		2			M304TR0.750W.049	304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft						40		S051211	Stock	3/14/2018	\$ 3.33 / ft	
		3			M304TR0.750W.120	304 Ss Round Tube .750 X .120W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft				12		20		S051212	Stock	3/14/2018	\$ 3.95 / ft	
		4			M6061T6T0.625W.049	6061-T6 Round Tube .625 X.049W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft						12		S051213	Stock	3/14/2018	\$ 3.50 / ft	
		5			M6061T6T0.500W.058	6061-T6 Round Tube .500 X.058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft				40		48		S051214	Stock	3/14/2018	\$ 1.75 / ft	
		6			M6061T6TS1.000W.120	6061T6 Sq Tube 1.00 X 1.00 X .120W : MATERIAL: 6061-T6 OR 6061-T651/T6510/T6511/T62 SQUARE TUBING AS PER AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR PER AMS-QQ-A-200/8 OR AMS 4160 NOTE: FLAT EDGE REQUIRED				120		126		S051215	Stock	3/14/2018	\$ 2.00 / ft	
		7			M6061T6TS1.000W.125	6061T6 Sq Tube 1.00 X 1.00 X .125W : MATERIAL: 6061-T6 OR 6061-T651/T6510/T6511/T62 SQUARE TUBING AS PER AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR PER AMS-QQ-A-200/8 OR AMS 4160 NOTE: MATERIAL NEED TO BE WITH FLAT EDGE NOT ROUNDED				100		105		S051216	Stock	3/14/2018	\$ 2.00 / ft	
Total:										404		420						

Plex 3/14/2018 9:18 AM Dart Dubois Pascal



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039214**

Supplier: TWM001-VU
TW Metals
PO Box 933014
Atlanta, GA 31193-3014 USA
Phone: 585 768 5600
Fax: 585 768 5601

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO039214

PO Date: 3/6/18

Due Date: 3/12/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

E-MAILED

MAR 08 2018

Items

Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	M304P0.675W.091		304/316 Pipe .675 OD x .091 Wall Thickness : MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE AS PER ASTM A312/ASME SA312 receive ft	Firmed	3/12/18	60 ft	0 ft	60 ft	\$3.49/ft	\$209.40
							69'			
									MAR 14 2018	
2	M304TR0.750W.049		304 Round Tube .750 X .049W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	3/12/18	60 ft	0 ft	60 ft	\$3.333/ft	\$199.98
							40'			
									MAR 14 2018	
3	M304TR0.750W.120		304 Ss Round Tube .750 X .120W : MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING AS PER ASTM A213 OR ASME SA213 OR ASTM A269 receive ft	Firmed	3/12/18	12 ft	0 ft	12 ft	\$3.95/ft	\$47.40
							20'			
									MAR 14 2018	

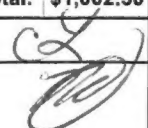
DAS
11
9-80

9-00

DAS
11
9-89

Items										
Line Item	Part	Supplier Part No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
4	M6061T6T0.625W.049		6061-T6 Round Tube .625 X.049W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	3/12/18	12 ft	0 ft 12	12 ft	\$3.50/ft	\$42.00
								MAR 14 2018		
5	M6061T6T0.500W.058		6061-T6 Round Tube .500 X.058W : MATERIAL: 6061-T6/T62/T6510/T6511 SEAMLESS TUBING AS PER WW-T-700/8 OR QQ-A-200/8 OR QQ-A-225/8 OR AMS 4080 OR AMS 40 82 OR AMS 4083 OR ASTM B210 OR ASTM B241 receive ft	Firmed	3/12/18	40 ft	0 ft 48	40 ft	\$1.75/ft	\$70.00
								MAR 14 2018		
6	M6061T6TS1.000W.120		6061T6 Sq Tube 1.00 X 1.00 X .120W : MATERIAL: 6061-T6 OR 6061-T651/T6510/T6511/T62 SQUARE TUBING AS PER AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR PER AMS-QQ-A-200/8 OR AMS 4160 NOTE: FLAT EDGE REQUIRED	Firmed	3/12/18	120 ft	0 ft 126	120 ft	\$2.00/ft	\$240.00
								MAR 14 2018		
7	M6061T6TS1.000W.125		6061T6 Sq Tube 1.00 X 1.00 X .125W : MATERIAL: 6061-T6 OR 6061-T651/T6510/T6511/T62 SQUARE TUBING AS PER AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR PER AMS-QQ-A-200/8 OR AMS 4160 NOTE: MATERIAL NEED TO BE WITH FLAT EDGE NOT ROUNDED	Firmed	3/12/18	100 ft	0 ft 105	100 ft	\$2.00/ft	\$200.00
								MAR 14 2018		
Grand Total:									\$1,002.30	

Order Notes


DAS
11
9-89DAS
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9-89DAS
11
9-89DAS
11
9-89

Order Notes

Procurement Quality Clauses

A005 right of entry

A012 chemical and physical test report

A016 personnel qualification

A017 raw material identification (as applicable)

A026 certification of material conformance

A041 quality management system

A042 dart notification by supplier

A043 retention of quality documents

A048 counterfeit parts avoidance, detection, mitigation and disposition program

A049 supplier awareness

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 3/6/18 10:09 AM dart.lavoie.chantal



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80917468

FROM: CHIC

PAGE 1

CUST NUMBER: 1203820 NET WGT: 196.030 REQ.DATE: 03/12/18 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 03/07/18
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: PO039214 RELEASE NO.:
RECEIVING PHONE:

LINE	ITEM DESCRIPTION	WIDTH	LENGTH
0001 38420	SMLS 304/L A-312 3/8 SCH 40		17/24 FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	60.000 FT	69.833 FT	69.833 FT	40.004	3

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO:49372626 HT:11M168 PC: 3 CUSTOMER QTY: UOM
MLT:CHINA MFG:CHINA SLB/CL:LTUA72

0002 36860 SMLS CD 304/L A269 3/4 OD X .049 WA 20' CL

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	40.000 FT	40.000 FT	40.000 FT	14.669	2

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO:49370276 HT:N170711AS10 PC: 2 CUSTOMER QTY: UOM
MLT:CHINA MFG:CHINA SLB/CL:-

0003 36925 SMLS CD 304/L A269 3/4 X .120 WA 20' CL

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	20.000 FT	20.000 FT	20.000 FT	16.147	1

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: 2B999.g Export License: NLR Expiration Date: 0/00/00
PO:49378892 HT:YX1709608 PC: 1 CUSTOMER QTY: UOM
MLT:CHINA MFG:CHINA SLB/CL:US-2395

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>



O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80917468

FROM: CHIC

PAGE 2

CUST NUMBER: 1203820 NET WGT: 196.030 REQ.DATE: 03/12/18 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 03/07/18
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: PO039214 RELEASE NO.:
RECEIVING PHONE:

LINE ITEM DESCRIPTION WIDTH LENGTH
0004 42506 D6061-T6 5/8 OD X .049 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	12.000 FT	12.000 FT	12.000 FT	1.247	1

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49375233 HT:F002504910001 PC: 1 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224071

0005 42276 D6061-T6 1/2 OD X .058 WA 12 FT ML

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	48.000 FT	48.000 FT	48.000 FT	4.545	4

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49380023 HT:F002573770002 PC: 4 CUSTOMER QTY: UOM
MLT:UNITED STATES MFG:UNITED STATES SLB/CL:224733

0006 45963 E6061-T6 SQ-SC TUBE 1 SQ X .125 WA 21'-1" FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	120.000 FT	126.500 FT	126.500 FT	65.137	6

** 1 TEST REPORTS REQUIRED **

** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49374541 HT:22894511 PC: 6 CUSTOMER QTY: UOM
MLT: MFG:UNITED STATES SLB/CL:1101258614

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
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O'Neal High-Performance Metals Group



Packing Slip

ORDER NO.: 80917468

FROM: CHIC

PAGE 3

CUST NUMBER: 1203820 NET WGT: 196.030 REQ.DATE: 03/12/18 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 03/07/18
TERMS: NET 30 DAYS VIA: COMMON CARRIER
F.O.B.: SHIPPING POINT FREIGHT: PREPAID
CUST ORD NO.: PO039214 RELEASE NO.:
RECEIVING PHONE:

LINE	ITEM	DESCRIPTION	WIDTH	LENGTH
0007	45963	B6061-T6 SQ-SC TUBE 1 SQ X .125 WA		21'-1" FT

CLN#	ORD QTY	INVOICE QTY	SHIPPED QTY	WT	PCS
	100.000 FT	105.417 FT	105.417 FT	54.281	5

** 1 TEST REPORTS REQUIRED **
** 1 CERTS REQUIRED **

ECCN: EAR99 Export License: NLR Expiration Date: 0/00/00
PO:49374541 HT:22894511 PC: 5 CUSTOMER QTY: UOM
MLT: MFG:UNITED STATES SLB/CL:1101258614

BROKERS KUEHNE AND NAGEL LTD

AREA	TYPE OF PKG	PKGS	GRS WEIGHT	WIDTH	LENGTH	HGHT
351	REDDICRATE	1.000	287.000	7.0000	288.0000	7
		1.000	287.000			

BY: KB
RT 000-

UNLOAD TYPE: NONE SPECIFIED

DATE SHIPPED _____

DATE FILLED _____

1	THANK YOU FOR THIS ORDER	TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
		PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL REVIEW. http://www.twmetals.com/invoice-terms.html



O'Neal High-Performance Metals Group



**Packing
Slip**

ORDER NO.: 80917468

FROM: CHIC

PAGE 4

CUST NUMBER: 1203820 NET WGT: 196.030 REQ.DATE: 03/12/18 CONFIRMED
SOLD TO: SHIP TO:
DART AEROSPACE LTD DART AEROSPACE LTD
1270 ABERDEEN ST 1270 ABERDEEN ST
HAWKESBURY ON HAWKESBURY ON
CANADA CN K6A 1K7 ONTARIO CANADA CN K6A 1K7

SALESPERSON: DONNA SMALLEY SHIP BY: 03/07/18
TERMS: NET 30 DAYS 235 TUBEWAY
F.O.B.: SHIPPING POINT CAROL STREAM IL 60188
CUST ORD NO.: PO039214
VIA: COMMON CARRIER
FREIGHT: PREPAID
RELEASE NO.:
RECEIVING PHONE:

"TW Metals MSDS data is available on our web site at www.twmetals.com. MSDS data can be found under the Technical Resources Tab, Product Statistics & Data and the TW Metals MSDS's heading. If you do not have web site access you may telephone 610-458-1300 and we will mail or fax a copy of our current MSDS data to your location."

"CERTIFICATE OF CONFORMANCE"

"TW Metals certifies that the material supplied on this purchase order and contained in the heat/lot number referenced above has been manufactured, inspected, and tested in accordance with the material specification. These records are on file at TW Metals. Packaging material for shipments to Europe and China consists of manufactured wood products and complies with the European emergency measures for coniferous non-manufactured wood packing material"

Authorized Test Report Clerk Kathy Bachnick Date: 3/07/18

These commodities have been exported from the United States in accordance with the U.S. export control laws, export administrations regulations. Diversion contrary to U.S. law prohibited.

THANK YOU FOR THIS ORDER

TERMS AND CONDITIONS APPLICABLE TO THE SALE OF THESE
PRODUCTS ARE SET FORTH ON OUR WEBSITE FOR YOUR CAREFUL
REVIEW.
<http://www.twmetals.com/invoice-terms.html>

WLPSSRW023068



MILL INSPECTION CERTIFICATE

EN 10204 3.1

CHANGSHU WALSHIN SPECIALTY STEEL CO.,LTD.

CUSTOMER: TA CHEN STAINLESS PIPE CO.,LTD.		HEAT NO.: 11M168																									
DATE: 20170306		SPECIFICATION: ASTM A312, SA312-14, ASME SA312-15, SA312-15																									
COMMODITY: STAINLESS STEEL SEAMLESS PIPE		CERTIFICATE NO.: 201703062008102																									
DELIVERY CONDITION: COLD FINISHED SOLUTION ANNEALED AND PICKLED		GRADE: TP304L																									
CHEMICAL COMPOSITION (WT%)																											
ELEMENTS	C	Si	Mn	P	S	Ni	Cr	Mo	N	Cu	Ti	Nb	Hb-Ta	Co	V	B	Al	Sb	Pb	As	Sn	Fe	Bi	Zr	Al+Ti	PREN	Fe/Ni content
min	0.000	0.000	0.000	0.000	0.000	8.000	18.000																				
max	0.035	0.750	2.000	0.045	0.0300	11.000	20.000																				
RESULTS	0.024	0.300	0.950	0.032	0.0020	8.100	18.240	0.060		0.200																	

SIZE	PACKAGE NO.	PRECES	WEIGHT		TS	YS		EL(δmm)	HARDNESS	FLATTENING	FLARING	I.C.	PITTING	GRAIN	Lot No.	HYDROSTATIC	EDDY	ULTRASONIC
OD(δmm)±1.6mm			kg	lb	MPa	0.2% MPa	1% MPa	%	HRB	TEST	TEST	TEST	(mg/dm² day)	SIZE		TEST	TEST	TEST
1405-8096-7315	TA126-18	31	709.71	505	666.671	327.315	/	57.61	6280.5	GOOD	/	GOOD	/	/	201702-TG-A03	/	GOOD	/
38405-8096-7315	TA126-28	48	1118.11	291	622.555	312.280	/	64.564.5	6078.5	GOOD	/	GOOD	/	/	201702-TG-067	/	GOOD	/
14405-8096-7315	TA126-27	85	1946.32	492	602.611	244.244	/	66.566.5	7474	GOOD	/	GOOD	/	/	201702-TG-007	/	GOOD	/
1405-8096-7315	TA126-9	59	1348.18	1003	666.671	327.315	/	57.61	6280.5	GOOD	/	GOOD	/	/	201702-TG-A03	/	GOOD	/
TOTAL		223	5123.52	2311														

Remarks:
1. WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN BEEN MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH THE RESULTS OF THE CONTRACT AND CONFORM TO THE SPECIFICATION ABOVE.
2. MATERIAL FREE FROM MERCURY CONTAMINATION AND RADIOACTIVE CONTAMINATION.
3. NO REPAIR BY WELDING.
4. THE CERTIFICATE SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.

AS PER PROFORMA INVOICE NO.162863.S
I.C. TEST PER ASTM A362/G2A.1 MIL P24691/3 MIL P11440
NO REPAIR BY WELDING
MATERIAL FREE FROM MERCURY CONTAMINATION
COUNTRY OF ORIGIN: CHINA, COUNTRY OF MANUFACTURE: CHINA
ET STANDARD PRACTICE ASTM E426
REFERENCE DISCONTINUITY: DRILLED HOLE
WATER QUENCHED ANNEALING TEMPERATURE:1080°C
FREE OF RADIATION

TA CHEN METALS
REPORT
1 JUN 16 17
ACCEPTED BY

QUALITY MANAGER
Sun Pin

ADDRESS: 2# HAITANG ROAD, HANYU TOWN, CHANGSHU CITY, JIANGSU PROVINCE, CHINA 215519 TEL: +86-512-52586280 FAX: +86-512-52586827
B-2-CS-QM-10000-006-0201

Customer: TWMEXT PO#:M49372626 SO#:LTUA72
Item:S44L00C Bundle:WLRW023TA126-26 Heat#:11M168

TA CHEN INTERNATIONAL, INC.

MILL TEST REPORT

MISCO

JIAOXING MT STAINLESS STEEL CO.,LTD

MILL TEST CERTIFICATE

EN10204 3.1 CERTIFICATE

ISO 9001: 2008 TUV SUD CERT REGISTRATION No.: 01 100 095954

PED/97/23/CE EURO CERT CERTIFICATE NO:CN.CE.1110S1-02/14



Product Right

CERTIFICATE NO.: 17MTC-102310

SALES CONTRACT NO.: M 49370276

COMMODITY: STAINLESS STEEL SEAMLESS PIPE

SPECIFICATION: ASTM A213-15c ASTM A269-15a, ASME SA213-15 AVG WALL

PURCHASER: KASUGAI CO., LTD.

ORDER M 49370276

DATE OF REPORT: 2017-10-17

Steel Grade	Heat No.	Dimensions			Quantity		Process	Delivery Condition	Macroscopic Inspection	
		O.D. (INCH)	W.T. (INCH)	Length (FT)	FT	Piece		Ann heat & Pickled & 320 Grit/min	End Cut	Appearance
TP304/304L	N170711AS10	3/4	0.049	20	5500	275	Cold-Drawn		Passed	Passed

Chemical Composition (W.T. %)

Element	C	Si	Mn	P	S	Cr	Ni	Mo	Ti				
Requirements	≤0.035	≤1.00	≤2.00	≤0.045	≤0.030	18.0-20.0	8.0-12.0	-	-	-	-	-	-
Ladle Analysis	0.017	0.34	1.32	0.027	0.001	18.13	8.01	-	-	-	-	-	-

Mechanical Properties

Test Item	Y.S. (MPa)	T.S. (MPa)	EL. (%)	Reduction of Area Z (%)	Hardness HRB	Cold Bend Test	Flaring Test	Flattening Test	P.M.L. TEST
Requirements	≥170	≥485	≥35	-	≤80	-	-	e=0.09	-
Test Results	260	625	55	-	76	Passed	Passed	Passed	Passed

Non Destructive Tests

Test Item	Eddy Current Test
Requirements	ASTM E 426
Test Results	Passed

Remarks:

- ASTM A213-15c ASTM A269-15a, ASME SA213-15 AVG WALL
- PIPES TESTED PER ASTM A1016
- SOLUTION HEAT TREATMENT 1050°C X 1 5hr/min
- NO WELD REPAIR WAS PERFORMED
- PMI TESTING DONE ON EACH PIPE - SATISFACTORY
- IN COMPLIANCE WITH NACE MR0175/ISO 15156-2015
- FREE FROM MERCURY CONTAMINATION
- MATERIAL IS FREE FROM RADIOACTIVITY
- VISUAL CHECK IS SATISFACTORY
- COUNTRY OF ORIGIN: CHINA
- COUNTRY OF MELT: CHINA

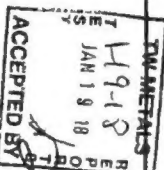


1. WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT

2. THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF THE COMPANY.

Prepared by:

Approved by:



TUSCO TUBE

MILL TEST CERTIFICATE
ISO9001:2008 / EN10204 3.1

CUSTOMER: TW METAL

P.O.: US-2395

TW ORDER NO. M49378892

GRADE: ~~ASTM A213/A213M-17~~ ASME SA213/SA213M-17 AVG WALL

ASTM A269/A269M-15A TP304/304L

COMMODITY: STAINLESS STEEL SEAMLESS TUBE

CONDITION: COLD FINISH /SOLUTION TREATED/PICKLED/PLAIN END/OD POLISHED 240 GRIT.

CERTIFICATE NO.: TC2017122606

HEAT NO.: YX1709-608

CHEMICAL COMPOSITION (%)

ELEMENTS	C	SI	Mn	P	S	Ni	Cr	Mo	Ti	Cu	N	Co
SPEC	MIN					8	18					
	MAX	0.035	1	0.045	0.03	12	20					
RESULTS		0.026	0.4	0.64	0.034	0.002	8.05	18.16				

PHYSICAL PROPERTIES

Dimensions			Quantity		Tensile Properties				Hardness	Flattening	Flaring	Grain Size	Hydrostatic	I.C.T A262E	EDDY CURRENT TEST (100%)
OD	W.T	LENGTH			V.S 0.2%	T.S	EL	HRB							
(INCH)	(INCH)	(FT)	FT	KG	MPa	MPa	≥35(%)	80max							
0.75	0.120	20	2760	1022.58	300	600	57	71	OK	OK	/		OK	OK	OK
1	0.035	20	1100	182.05	290	610	55	72	OK	OK	/		OK	OK	OK
1.25	0.065	20	2080	784.16	300	600	55	71	OK	OK	/		OK	OK	OK

REMARKS:

IN COMPLIANCE TO NACE MR0175-2015/MR0103
SOLUTION HEAT TREATMENT :1050°C X 1.5m/min

NO WELD REPAIR WAS PERFORMED

FREE FROM MERCURY CONTAMINATION

FREE FROM RADIATION CONTAMINATION

IC TESTING ACCORDANCE TO ASTM A262 E-SATISFACTORY

MELT AND MANUFACTURE COUNTRY: CHINA

ROHS COMPLIANT

PMI TESTING DONE.

MATERIAL TEST CERTIFICATES TO EN 10204/3.1

MATERIAL COMPLIANT WITH ISO 9001:2008

THE FOLLOWING CLAUSES ARE NOT APPLICABLE:

~ FAR BAA/FAR 52.225-1 BUY AMERICAN ACT-SUPPLIES)

~ DFARS BAA(DFARS 252.225-7001 BUY AMERICAN ACT & BAL. OF PAYMENTS PROG

~ FAR TAA(FAR 52.225-5 TRADE AGREEMENTS)

ALL MATERIAL PROVIDED UNDER THIS PURCHASE ORDER IS FREE OF

CONFLICT MINERALS IN ACCORDANCE WITH THE DODD FRANK ACT SECTION 1502

ADD: SHUANGBANG VILLAGE, (YANG YUAN) XINZHUANG TOWN, CHANGSHU, SUZHOU CITY, JIANGSU PROVINCE, PEOPLE'S REPUBLIC OF CHINA



1. WE HEREBY CERTIFY THAT THE MATERIAL DESCRIBED HEREIN HAS BEEN TESTED AND THE TEST RESULTS ARE IN COMPLIANCE WITH THE TERMS OF THE PURCHASE ORDER OR CONTRACT OF TW METALS
PO#M49378892

2. THE CERTIFICATE SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF TUSCO TUBE.

MANAGER OF QUALITY ASSURANCE DEPARTMENT



KAISER ALUMINUM FABRICATED PRODUCTS

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49375233-1		CUSTOMER PART NUMBER: 42506		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 224071	LINE ITEM: 001	SHIP DATE: 09/23/2017	KAISER LOT NUMBER: F00250491	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 388.000 LB	QUANTITY: 311.000 PCS	B/L NUMBER: 226892	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

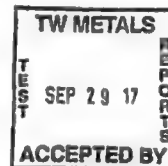
REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00250491	0001	1	48.0	41.5	19.0	N/A	N/A	N/A
F00250491	0002	1	47.7	41.2	19.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D20419	.61	.27	.21	.04	.98	.09	.05	.03	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.6250"; Wall: 0.0490"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00026219
Kaiser Order Number: 224071
Line Item: 001

KAISER
ALUMINUM
FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager

L. Kattentidt



Plant Serial: 00026219
Kaiser Order Number: 224071
Line Item: 001

AK

KAISER ALUMINUM FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT
http://Online.KaiserAluminum.com

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CUSTOMER PO NUMBER: M49380023-1		CUSTOMER PART NUMBER: 42276		PRODUCT DESCRIPTION: Drawn Seamless Tube/Pipe	
KAISER ORDER NUMBER: 224733	LINE ITEM: 001	SHIP DATE: 12/18/2017	KAISER LOT NUMBER: F00257377	ALLOY: 6061	TEMPER: T6
WEIGHT SHIPPED: 535.000 LB	QUANTITY: 469.000 PCS	B/L NUMBER: 227858	DIAM/DAF/THKNS:	WIDTH:	LENGTH: 12.000 FT
SHIP TO: TW METALS INC 235 WEST TUBEWAY DRIVE CAROL STREAM, IL 60188 USA			SOLD TO: TW METALS INC 760 CONSTITUTION DRIVE SUITE 204 EXTON, PA 19341 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CON%IACS	BEND
F00257377	0001	1	47.1	42.3	16.0	N/A	N/A	N/A
F00257377	0002	1	47.3	41.8	18.0	N/A	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
D30857	.60	.29	.24	.04	.93	.08	.06	.02	.00	.00	.00	.01	.02

Applicable Requirements:

Description: OD: 0.5000"; Wall: 0.0580"; Round @
AMS4082P AMS-WW-T-700/6C ASTM B210-12 WW-T-700/6F
WE TAKE EXCEPTION TO PARA. 5.2.1., Per AMS4082P, WAS NOT OILED.
This Product Complies to FAR BAA, DFARS BAA, FAR TAA
COMPLIES TO DIN EN 10204 JAN 2005
No Weld Repair. Mercury Free.



Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00026922
Kaiser Order Number: 224733
Line Item: 001

KAISER
ALUMINUM
FABRICATED PRODUCTS

Best in Class

CERTIFIED TEST REPORT

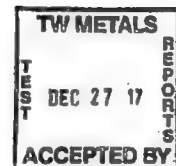
<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
6573 W. WILLIS ROAD
CHANDLER, AZ 85226

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC ('Kaiser') hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with the applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms & conditions of sale. Test reports are on file subject to examination.

Hans Kattentidt, Quality Manager



1167

Sapa

Sapa Industrial Extrusions
1550 KIRBY LANE

SPANISH FORK, UT
84660-1349

Sapa Extrusions Inc., a Subsidiary of Sapa AB

Invoice To Customer

TW METALS INC
THE ARBORETUM SUITE 204
760 CONSTITUTION DR

EXTON, PA - 19341

Ship To Customer

TW METALS INC
235 WEST TUBEWAY

CAROL STREAM, IL - 60188

Certified Inspection Report

Sales Order Number		Line No.	Customer P/O	Cert Number	Page
1101258614		1	M49374541-1	SAPA2703664	1 of 3
Quantity Shipped		Date Shipped	Item Description	Specification	Cert Creation Date
6005 LB		01-AUG-17	Extruded Hollow Square Tube 1.000 SQ x 0.125 WALL 253.000 INTN FIN M-MILL W/F 515 E 14 CS 1.41 6061/76 Marking CONTINUOUS;	ASTM B221 REV 14 ASMESB221 REV 09 AMS-QQ-A-200/8 REV A	01-AUG-17
B/L		Item No.	Item No. Rev		Cert Print Date
854900		303367059			01-AUG-17
Delivery Id		Customer Part No.			
4920386		45963			

Applicable Specifications, Revisions and Exceptions

Profiles supplied are "domestic end products" as defined in FAR 52.225-1 entitled "Buy American Act - Supplies" and DFARS 252.225-7001 entitled "Buy American Act and Balance of Payments Program", and are "U.S.-made end products" as defined in FAR 52.225-5 entitled "Trade Agreements." This profile is manufactured at one of Sapa's US facilities. Aluminum billet, which is the principal component used in the manufacturing process, is purchased from sources in the US and/or in qualifying countries as described in DFARS 225.872.1. DFARS clause 252.225-7014 entitled "Preference for Domestic Specialty Metals," does not relate to aluminum extrusions that would be produced by Sapa since 6061 or 6063 alloys do not fall within the definition of Specialty Metals.

Certificate in accordance with EN10204 3.1

TAG: BLANKET PO# TW4912181

COMPOSITION NOTE: The values for 'Others Each' and 'Others Total' have met the limits as shown on this certified inspection report. Remainder is Aluminum.

Signature And Title

Steven Tanner

Quality Control Manager

01-AUG-17

Legal Statement
We hereby certify that, unless otherwise indicated, the material covered by this report has been manufactured, inspected, and tested in accordance with, and has been found to meet, the applicable requirements described herein, including any specifications forming a part of the description and that samples representative of the material met the composition and mechanical properties shown on the face of this certification. Also, note that mercury is not a normal contaminant in aluminum alloys and neither it nor any of its compounds are used in the manufacture of our product. This certification is not to be reproduced in partial form without prior written approval of our Quality Assurance Dept.



AK



Sapa Industrial Extrusions
1550 KIRBY LANE
SPANISH FORK, UT
84660-1349

Certified Inspection Report

Sales Order Number 1101258614	Line No. 1	Customer P/O MA9374541-1	Cert Number SAPAZ2703664	Page 2 of 3
			Cert Creation Date 01-AUG-17	Cert Print Date 01-AUG-17

Quantities per Lot / Packages

Package Number	Lot Number	Quantity	UOM	Weight	
				Gross	Net
G14-PKG1952050	22894511	106	PCS	1209	1201
G14-PKG1952051	22894511	106	PCS	1209	1201
G14-PKG1952058	22894511	106	PCS	1209	1201
G14-PKG1952161	22894511	106	PCS	1209	1201
G14-PKG1952164	22894511	106	PCS	1209	1201

Composition Limits

Alloy	Si		Fe		Cu		Mn		Mg		Cr		Zn	
	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
6061	0.40	0.80	---	0.70	0.15	0.40	---	0.15	0.80	1.20	0.04	0.35	---	0.25
Alloy 6061	Ti		Others Each		Others Total									
	Min	Max	Min	Max	Min	Max								
	---	0.15	---	0.05	---	0.15								

Composition Results

Steel / Cast	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others Each	Others Total
S17072604	0.73	0.32	0.24	0.06	0.89	0.06	0.06	0.02	---	---

Mechanical Property - Test Limits

Test Type		UTS - L		TYS - L		EL 4D-Long		
UOM		KSI		KSI		PCT		
# of Test		--		--		--		
Test Temper	Lot Number	# of Tests	MIN Value	MAX Value	MIN Value	MAX Value	MIN Value	MAX Value
16	22894511	4	44.3	46.3	39.0	42.0	10.5	13.0

Cert Notes

TW METALS
RECEIVED
AUG 03 17
ACCEPTED BY

115

Sapa

Sapa Industrial Extrusions
1550 KIRBY LANE
SPANISH FORK, UT
84660-1349

Certified Inspection Report

Cert Number		Page	
SAPA2703664		Page 3 of 3	
Cert Creation Date		Cert Print Date	
01-AUG-17		01-AUG-17	

Sales Order Number	Line No.	Customer P/O
1101258614	1	M49374541-1

Products manufactured with a T6311 temper also meet T6 temper requirements.

Yield strength has been determined by the 0.2% offset method

All mill finish alloys produced at Sapa Industrial Extrusions comply with Directive 2011/65/EU (RoHS 2) with the exception of 6262 alloy

In accordance with EN 10204 Inspection Certificate Type 3.1

Milled in the USA or Qualifying Countries (as defined in Defense Federal Acquisition Regulation Supplement (DFARS) Section 225.872-1)

Manufactured in the United States

Manufactured in the United States



ACCEPTED BY *AK*

AK

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061T6+51.000W.125
 DATE: MAR 14 2018

PO / BATCH NO.: 039214/5051216

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 105'
 QUANTITY INSPECTED: 105'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.125
 THICKNESS RECEIVED: W.125
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y	N	
CORROSION	Y	<input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y	N	<u>Ams-QQ-A-20018</u>
CORRECT THICKNESS	<input checked="" type="radio"/> Y	N	
PHOTO REQUIRED	Y	<input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y	N	<u>Heat # 22894511 Lot # 22894511</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-89 MAR 14 2018</u>	SIGNED OFF BY: _____ DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>(P)</i>	APPROVED <i>[Signature]</i>	DRAWING NO. M6061T6TS	REV. <i>A</i> SHEET <i>1</i> OF <i>1</i>
DATE 01.09.24		TITLE 6061-T6 SQUARE TUBING	SCALE MTS
A	01.09.24	NEW ISSUE	

PURCHASE MATERIAL :

6061-T6 (OR 6061-T651/T6510/T6511/T62) SQUARE TUBING
PER AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR
IER AMS-QQ-A-225/7 (OR AMS 4160)

(W)

PART NUMBER :

M6061T6TS | A.AAA | W.TTT |
| WIDTH | WALL |

WHERE A.AAA = WIDTH IN INCHES
.TTT = WALL THICKNESS IN INCHES

EG. 0.75" x 0.75" x 0.062" WALL = M6061T6TS 0.750W.062

RELEASED
181025

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061T6T51.000W.120
 DATE: MAR 14 2018

PO / BATCH NO.: 039214/5051215

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 126'
 QUANTITY INSPECTED: 126'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.120
 THICKNESS RECEIVED: W.120
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="radio"/> N	
CORRECT FINISH	<input checked="" type="radio"/> Y N	
CORROSION	Y <input checked="" type="radio"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y N	<u>AMS-22-A-2008</u>
CORRECT THICKNESS	<input checked="" type="radio"/> Y N	
PHOTO REQUIRED	Y <input checked="" type="radio"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y N	<u>Heat # 22894511 Lot # 22894511</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="radio"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="radio"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9-89 MAR 14 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



DESIGN <i>[Signature]</i>	DRAWN BY <i>[Signature]</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>CP</i>	APPROVED <i>[Signature]</i>	DRAWING NO. M6061T6TS	REV. <i>A</i> SHEET <i>1</i> OF <i>1</i>
DATE 01.09.24		TITLE 6061-T6 SQUARE TUBING	SCALE N.T.S.
A	01.09.24	NEW ISSUE	

PURCHASE MATERIAL :

6061-T6 (OR 6061-T6S1/T6S10/T6S11/T6Z) SQUARE TUBING
PER AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116) OR
PER AMS-QQ-A-200 (OR AMS 4160)

PART NUMBER :

M6061T6TS | A.AAA | W | .TTT |
 | WIDTH | WALL |
WHERE A.AAA = WIDTH IN INCHES
 .TTT = WALL THICKNESS IN INCHES.

EG. 0.75" x 0.75" x 0.062" WALL = M6061T6TS 0.750W.062

RELEASED
270122

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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: m6061t6to500w.058
 DATE: MAR 14 2018

PO / BATCH NO.: 039214/5051214

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 48'
 QUANTITY INSPECTED: 48'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.058
 THICKNESS RECEIVED: W.058
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT FINISH	<input checked="" type="radio"/> Y <input type="radio"/> N	
CORROSION	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="radio"/> Y <input type="radio"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="radio"/> Y <input type="radio"/> N	<u>WU-T-70016</u>
CORRECT THICKNESS	<input checked="" type="radio"/> Y <input type="radio"/> N	
PHOTO REQUIRED	Y <input checked="" type="radio"/> N <input type="radio"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="radio"/> Y <input type="radio"/> N	<u>Heat # P002573770002</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="radio"/> Y <input type="radio"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="radio"/> Y <input type="radio"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="radio"/> N <input type="radio"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="radio"/> N <input type="radio"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: 9-89 <u>MAR 14 2018</u>	SIGNED OFF BY: _____ DATE: _____

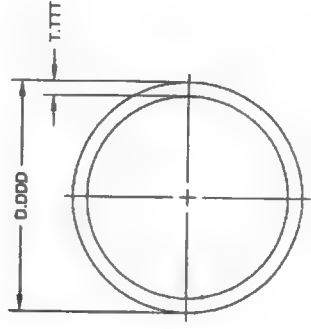
Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

PURCHASE MATERIAL: 8081-T6/T82/T8510/T8511 SEAMLESS TUBING

SPECIFICATION: WAL-2006
OR QQ-A-200/8 OR QQ-A-225/8
OR AMS 4080 OR AMS 4082 OR AMS 4083
OR ASTM B210 OR ASTM B241

PART NUMBER: M6061T6T8P.DDD|WT.TTT
OD | WALL

WHERE "D.DDD" = OD IN INCHES
"T.TTT" = WALL THICKNESS
EG. 3/8" OD X 0.058 WALL = M6061T6T8T0.375W0.058
MATERIAL TOLERANCE: PER ANSI H35.2



RELEASED
2013-07-02

C	COMPLETE REFORMAT, ADDED T8510 & T8511. ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED			
MFG. APPR.	DRAWING NO. M6061T6T		
APPROVED	TITLE 8081-T6 TUBING		
DE APPR.			
DATE	13.06.12		
DART AEROSPACE LTD HAMKESBURY, ONTARIO, CANADA			
REV. C SHEET 1 OF 1			
SCALE NTS			
COPYRIGHT © 2001 BY DART AEROSPACE LTD. THIS DOCUMENT IS A COPY OF A DOCUMENT NOT TO BE REPRODUCED WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.			

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M6061 T6 to .625 W.049
 DATE: MAR 14 2018

PO / BATCH NO.: 039214/5051213

MATERIAL CERT REC'D: YES
 QUANTITY RECEIVED: 12
 QUANTITY INSPECTED: 12
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.049
 THICKNESS RECEIVED: W.049
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	WU-T-700/6
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat# F002504910001
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9-89 MAR 14 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

PURCHASE MATERIAL: 6061-T6/T62/T651/T6511 SEAMLESS TUBING

SPECIFICATION:

WW-T-700/6

OR QQ-A-200/8 OR QQ-A-225/8

OR AMS 4080 OR AMS 4082 OR AMS 4083

OR ASTM B210 OR ASTM B241

PART NUMBER:

M6061T6T6D.DDD|WT.TTT
OD WALL

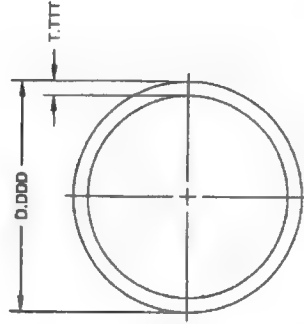
WHERE "D.DDD" = OD IN INCHES

"T.TTT" = WALL THICKNESS

EG. 3/8" OD X 0.058 WALL = M6061T6T6D.375W0.058

MATERIAL TOLERANCE:

PER ANSI H35.2



RELEASED
2013-07-02

C	COMPLETE REFORMAT, ADDED T6510 & T6511, ADDED AMS 4083, ASTM B210 & ASTM B241 ADDED MATERIAL TOLERANCE	AJS	13.06.12
B	ADD QQ-A-200/8 & QQ-A-225/8	CP	04.01.23
A	NEW ISSUE	DS	01.06.21
REV.	DESCRIPTION	BY	DATE
DESIGN	AJS		
DRAWN	AJS		
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	13.06.12		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M6061T6T6			
TITLE 6061-T6 TUBING			
SHEET 1 OF 1			
SCALE NTS			
DATE 13.06.12			
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304tro. 750W.120
 DATE: MAR 14 2018

PO / BATCH NO.: 039214/5051212

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 12' 20'
 QUANTITY INSPECTED: 12' 20'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.120
 THICKNESS RECEIVED: W.120
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	Astm A213
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat # YX1709608
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 1B INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-8 MAR 14 2018</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/2	+0.005	±15%
1/2 TO 1 1/2 EXCL.	+0.005	±10%
1 1/2 TO 3 1/2 EXCL.	+0.010	±10%
3 1/2 TO 6 1/2 EXCL.	+0.015	±10%
5 1/2 TO 6 EXCL.	+0.030	±10%

PART NUMBER

M304TRD.DDD|W|TTT|WALL

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W.065

RELEASED
08/28/23 HJD

B	REFORMAT DWG. ADD SPECS (ZN D8-1), REF PAR 08-020A	CP	08 10 20
A	NEW ISSUE	DS	01 06 08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG APPR			
APPROVED			
DE APPR			
DATE	08.10.20		
DART AEROSPACE LTD HAWKESBURY ONTARIO CANADA			
DRAWING NO. M304TR			
TITLE 304/316 ROUND TUBING			
REV. B SHEET 1 OF 1			
SCALE NTS			
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304TRO.750W.049

PO / BATCH NO.: 039214/5051211

DATE: MAR 14 2018

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 40'
 QUANTITY INSPECTED: 40'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.049
 THICKNESS RECEIVED: W.049
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	Astm A213
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat # N170711A510
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>DAS</u> <u>11</u> DATE: <u>9-89</u> MAR 14 2018	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS SEAMLESS ROUND TUBING

SPECIFICATION: ASTM A213 OR ASME SA213 OR ASTM A269

WALL THICKNESS TOLERANCE PER ASTM A269 AS FOLLOWS:

OD (IN)	PERMISSIBLE OD TOL (IN)	PERMISSIBLE WALL TOL
UP TO 1/2	±0.005	±15%
1/2 TO 1 1/4 EXCL.	±0.005	±10%
1 1/4 TO 3 1/4 EXCL.	±0.010	±10%
3 1/4 TO 5 1/4 EXCL.	±0.015	±10%
5 1/4 TO 8 EXCL.	±0.030	±10%

PART NUMBER:

M304TR0.065W|TTT|

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES
AND "TTT" = WALL THICKNESS IN INCHES

EG. 0.375" OD X 0.065" WALL TUBING = M304TR0.375W 065

RELEASED
R 08/10/20

B	REFORMAT DWG. ADD SPECS (ZN D8-1), REF PAR 08-120A	CP	08.10.20
A	NEW ISSUE	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.10.20		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M304TR			
SHEET 1 OF 1			
TITLE 304/316 ROUND TUBING			
SCALE NTS			
DATE 08.10.20			
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MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304PO.675W.091
 DATE: MAR 14 2018

PO / BATCH NO.: 039214/5051210

MATERIAL CERT REC'D: yes
 QUANTITY RECEIVED: 69'
 QUANTITY INSPECTED: 69'
 QUANTITY REJECTED: 0

THICKNESS ORDERED: W.091
 THICKNESS RECEIVED: W.091
 SHEET SIZE ORDERED: N/A
 SHEET SIZE RECEIVED: N/A

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y (N)	
CORRECT FINISH	(Y) N	
CORROSION	Y (N)	
CORRECT GRAIN DIRECTION	(Y) N	
CORRECT MATERIAL PER M-DRAWING	(Y) N	Astm A312
CORRECT THICKNESS	(Y) N	
PHOTO REQUIRED	Y (N)	
CORRECT REF # TO LINK CERT	(Y) N	Heat # 11m168
CORRECT MATERIAL IDENTIFICATION	(Y) N	
CORRECT M# ON THE MATERIAL	(Y) N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y (N)	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y (N)	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)	
INSPECTED BY: <u>DAS 11</u> DATE: <u>9-89 MAR 14 2018</u>	SIGNED OFF BY: _____ DATE: _____		

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: TP304/TP316 STAINLESS STEEL SEAMLESS PIPE

SPECIFICATION: ASTM A312 / ASME SA312

PART NUMBER: M304P0.DDD|W|TTT
OD | WALL THICKNESS

WHERE "D.DDD" = OUTSIDE DIAMETER IN INCHES PER NPS DESIGNATION (REF TABLE 1)
AND ".TTT" = WALL THICKNESS IN INCHES PER PIPE SCHEDULE (REF TABLE 1)

EG. 3/8 SCHEDULE 40 PIPE = M304P0.675W.091

TABLE 1: DIMENSIONS OF NPS PIPE (REF ANSI B36.10/19)

NPS Designation	Outside Diameter (in)	Pipe Schedule Wall Thickness (in)	
		SCHEDULE 40	SCHEDULE 80
1/8	0.405	0.068	0.095
1/4	0.540	0.088	0.119
3/8	0.675	0.091	0.126
1/2	0.840	0.109	0.147
3/4	1.050	0.113	0.154
1	1.315	0.133	0.179
1-1/4	1.660	0.140	0.191
1-1/2	1.900	0.145	0.200
2	2.375	0.154	0.218
2-1/2	2.875	0.203	0.276
3	3.500	0.216	0.300
3-1/2	4.000	0.226	0.318
4	4.500	0.237	0.337

RELEASED

2017 JUN 19
ECN 17-590

APPROVED

A	NEW ISSUE	DESCRIPTION	CP	BY	DATE
REV.					
DESIGN	CP	DART AEROSPACE LTD			
DRAWN	CP	HAWKESBURY, ONTARIO, CANADA			
CHECKED	ML	DRAWING NO.			
MFG. APPR.	DD	M304P			
APPROVED	WM	TITLE			
DE APPR.	CP	304/316 PIPE			
DATE	17.02.24	SCALE			
		SHEET 1 OF 1			
		REV. A			
		MTS			
		DATE			

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